Article 4. Treatment Standards

§66268.40. Applicability of Treatment Standards.

NOTE: The treatment standards that heretofore appeared in tables in sections 66268.41, 66268.42, and 66268.43 of this chapter have been consolidated into the table “Treatment Standards for Hazardous Wastes” in this section.

(a) A prohibited waste identified in the table “Treatment Standards for Hazardous Wastes” may be land disposed only if it meets the requirements found in the table. For each waste, the table identifies one of three types of treatment standard requirements:

(1) All hazardous constituents in the waste or in the treatment residue shall be at or below the values found in the table for that waste ("total waste standards"); or,

(2) The hazardous constituents in the extract of the waste or in the extract of the treatment residue shall be at or below the values found in the table ("waste extract standards"); or,

(3) The waste shall be treated using the technology specified in the table ("technology standard"), which are described in detail in section 66268.42, Table 1 - Technology Codes and Description of Technology-Based Standards.

(b) For wastewaters, compliance with concentration level standards is based on maximums for any one day, except for D004 through D011 wastes for which the previously promulgated treatment standards based on grab samples remain in effect. For all nonwastewaters, compliance with concentration level standards is based on grab sampling. For wastes covered by the waste extract standards, the test Method 1311, the Toxicity Characteristic Leaching Procedure found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, "EPA Publication SW-846, as incorporated by reference in section 66260.11 (a)(19), shall be used to measure compliance. An exception is made for D004 and D008, for which either of two test methods may be used: Method 1311, or Method 1310, the Extraction Procedure Toxicity Test. For wastes covered by a technology standard, the wastes may be land disposed after being treated using that specified technology or an equivalent treatment technology approved by the Department under the procedures set forth in section 66268.42(b).

(c) When wastes with differing treatment standards for a constituent of concern are combined for purposes of treatment, the treatment residue shall meet the lowest treatment standard for the constituent of concern.

(d) Notwithstanding the prohibitions specified in subsection (a) of this section, treatment and disposal facilities may demonstrate (and certify pursuant to section 66268.7(b)(5)) compliance with the treatment standards for organic constituents specified by a footnote in the table "Treatment Standards for Hazardous Wastes" in this section, provided the following conditions are satisfied:

(1) The treatment standards for the organic constituents were established based on incineration in units operated in accordance with the technical requirements of article 15 of chapter 14 or based on combustion in fuel substitution units operating in accordance with applicable technical requirements;

(2) The treatment or disposal facility has used the methods referenced in subsection (d)(1) of this section to treat the organic constituents; and

(3) The treatment or disposal facility may demonstrate compliance with organic constituents if good-faith analytical efforts achieve detection limits for the regulated organic constituents that do not exceed the treatment standards specified in this section by an order of magnitude.

(e) For characteristic wastes (D001 - D043) that are subject to treatment standards in the following table “Treatment Standards for Hazardous Wastes,” and are not managed in a wastewater treatment system that is regulated under the federal Clean Water Act (CWA),that is federal CWA-equivalent, or that is injected into a Class I nonhazardous deep injection well, all underlying hazardous constituents (as defined in section 66260.10) shall meet Universal Treatment Standards, found in section 66268.48, Table Universal Treatment Standards, prior to land disposal as defined in section 66260.10 of this division.

(f) The treatment standards for F001–F005 nonwastewater constituents carbon disulfide, cyclohexanone, and/or methanol apply to wastes which contain only one, two, or three of these constituents. Compliance is measured for these constituents in the waste extract from test Method 1311, the Toxicity Characteristic Leaching Procedure found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in section 66260.11(a)(19). If the waste contains any of these three constituents along with any of the other 25 constituents found in F001–F005, then compliance with treatment standards for carbon disulfide, cyclohexanone, and/or methanol are not required.

(g) Between August 26, 1996 and March 4, 1999 the treatment standards for the wastes specified in section 66261.32 as EPA Hazardous Waste numbers K156-K159, and K161; and in section 66261.33 as EPA Hazardous Waste numbers P127, P128, P185, P188-P192, P194, P196-P199, P201-P205, U271, U278-U280, U364, U367, U372, U373, U387, U389, U394, U395, U404, and U409-U411; and soil contaminated with these wastes; may be satisfied by either meeting the constituent concentrations presented in table “Treatment Standards for Hazardous Wastes” in this section, or by treating the waste by the following technologies: combustion, as defined by the technology code CMBST in section 66268.42 Table 1, for nonwastewaters; and, biodegradation as defined by the technology code BIODG, carbon adsorption as defined by the technology code CARBN, chemical oxidation as defined b the technology code CHOXD, or combustion as defined as technology code CMBST at section 66268.42 Table 1, for wastewaters.

(h) Prohibited D004-D011 mixed radioactive wastes and mixed radioactive listed wastes containing metal constituents, that were previously treated by stabilization to the treatment standards in effect at that time and then put into storage, do not have to be re-treated to meet treatment standards in this section prior to land disposal.

(i) Zinc micronutrient fertilizers that are produced for the general public's use and that are produced from or contain recycled characteristic hazardous wastes (D004-D011) are subject to the applicable treatment standards in section 268.41 contained in the 40 CFR, parts 260 to 299, edition revised as of July 1, 1990.

(j) Effective September 4, 1998, the treatment standards for the wastes specified in section 66261.33 as EPA Hazardous Waste numbers P185, P191, P192, P197, U364, U394, and U395 may be satisfied by either meeting the constituent concentrations presented in the table "Treatment Standards for Hazardous Wastes" in this section, or by treating the waste by the following technologies: combustion, as defined by the technology code CMBST at section 66268.42 Table 1 of this chapter, for nonwastewaters; and, biodegradation as defined by the technology code BIODG, carbon adsorption as defined by the technology code CARBN, chemical oxidation as defined by the technology code CHOXD, or combustion as defined as technology code CMBST at section 66268.42 Table 1 of this chapter, for wastewaters.

NOTE: Authority cited: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code. Reference: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code; 40 CFR Section 268.40.

HISTORY

1. New section filed 5-24-91; operative 7-1-91 (Register 91, No. 22).
2. Repealer and new text, amendment of Note, and new Table filed 10-24-94 as an emergency; operative 10-24-94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2-20-95 or emergency language will be repealed by operation of law on the following day.
3. Repealer and new text, amendment of Note, and new Table refiled 2-21-95 as an emergency; operative 2-21-95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6-21-95 or emergency language will be repealed by operation of law on the following day.
4. Repealer and new text, amendment of Note, and new Table refiled 6-19-95 as an emergency; operative 6-19-95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-95 or emergency language will be repealed by operation of law on the following day.
5. Repealer and new text, amendment of Note, and new Table refiled 10-16-95 as an emergency; operative 10-16-95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2-13-96 or emergency language will be repealed by operation of law on the following day.
6. Certificate of Compliance as to 10-24-94 order including amendment of subsections (a)(1)-(c), (e) and (f) and table transmitted to OAL 12-15-95 and filed 1-31-96 (Register 96, No. 5).
7. Change without regulatory effect amending subsections (d) and (e) filed 8-15-97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 33).
8. Amendment of listing P015 in Table filed 10-13-98; operative 11-12-98 (Register 98, No. 42).
9. Change without regulatory effect amending subsection (a), repealing and adopting new subsection (e), adding new subsections (g)-(h), and repealing and adopting new table filed 6-4-99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 23).
10. Change without regulatory effect amending subsection (g), adding subsections (i)-(j) and amending Table "Treatment Standards for Hazardous Wastes" filed 9-11-2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 37).
11. Change without regulatory effect amending subsection (j) and amending Table, "Treatment Standards for Hazardous Wastes" filed 7—3—2002 pursuant to section100, title 1, California Code of Regulations (Register 2002, No. 27).

Section 66268.40, Treatment Standards for Hazardous Wastes (table),

(1) The waste descriptions provided in this table do not replace waste descriptions in Title 22, CCR, chapter 11. Descriptions of Treatment/Regulatory Subcategories are provided, as needed, to distinguish between applicability of different standards.

(2) CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with its salts and/or esters, the CAS number is given for the parent compound only.

(3) Concentration standards for wastewaters are expressed in mg/l are based on analysis of composite samples.

(4) All treatment standards expressed as a Technology Code or combination of Technology Codes are explained in detail in section 66268.42 Table 1 -- Technology Codes and Descriptions of Technology-Based Standards.

(5) Except for Metals (EP or TCLP) and Cyanides (Total and Amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of Title 22, CCR, chapter 14, article 15 or chapter 15, article 15, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in section 66268.40(d). All concentration standards for nonwastewaters are based on analysis of grab samples.

(6) Where an alternate treatment standard or set of alternate standards has been indicated, a facility may comply with this alternate standard, but only for the Treatment/Regulatory Subcategory or physical form (i.e., wastewater and/or nonwastewater) specified for that alternate standard.

(7) Both Cyanides (Total) and Cyanides (Amenable) for nonwastewaters are to be analyzed using Method 9010 or 9012 found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA Publication SW-846, as incorporated by reference in section 66260.11, with a sample size of 10 grams and a distillation time of one hour and 15 minutes.

(8) These wastes, when rendered nonhazardous and then subsequently managed in federal CWA, or federal CWA-equivalent systems, are not subject to treatment standards. (See section 66268.1(c)(3) and (4)).

(9) These wastes, when rendered nonhazardous and then subsequently injected in a Class I federal Safe Drinking Water Act (SDWA) well, are not subject to treatment standards.

(10) The treatment standard for this waste may be satisfied by either meeting the constituent concentrations in this table or by treating the waste by the specified technologies: combustion, as defined by the technology code CMBST in section 66268.42 Table 1 of this chapter, for nonwastewaters; and, biodegradation as defined by the technology code BIODG, carbon adsorption as defined by the technology code CARBN, chemical oxidation as defined by the technology code CHOXD, or combustion as defined as technology code CMBST in section 66268.42 Table 1 of this chapter, for wastewaters.

(11) For these wastes, the definition of CMBST is limited to: (1) combustion units operating under CCR, Title 22, chapter 16, (2) combustion units permitted under CCR, Title 22, chapter 14, article 15, or (3) combustion units operating under CCR, Title 22, chapter 15, article 15, which have obtained a determination of equivalent treatment under section 66268.42(b).

(12)Disposal of K175 wastes that have complied with all applicable section 66268.40 treatment standards must also be macroencapsulated in accordance with 66268.45 Table 1 unless the waste is placed in:

(1) A RCRA Subtitle C monofill containing only K175 wastes that meet all applicable section 66268.40 treatment standards; or

(2) A dedicated RCRA Subtitle C landfill cell in which all other wastes being co-disposed are at pH≤6.0.

NOTE: NA means not applicable.

§66268.41. Treatment Standards Expressed As Concentrations in Waste Extract.

For the requirements previously found in this section and for treatment standards in Table CCWE--Constituent Concentrations in Waste Extracts, refer to section 66268.40 of this chapter.

NOTE: Authority cited: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code. Reference: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code; 40 CFR Section 268.41.

HISTORY

1. New section filed 5-24-91; operative 7-1-91 (Register 91, No. 22).
2. Editorial correction of HISTORY 1. and amendment of subsection (a) refiled, including further amendments, new section refiled 9-3-91 as an emergency; operative 9-3-91 (Register 92, No. 17). A Certificate of Compliance must be transmitted to OAL 1-2-92 or emergency language will be repealed by operation of law on the following day.
3. Emergency order of 5-6-91 amending subsection (a) filed 12-26-91 as an emergency; operative 12-26-91 (Register 92, No. 17). A Certificate of Compliance must be transmitted to OAL 4-24-92 or emergency language will be repealed by operation of law on the following day.
4. Amendment refiled 4-20-92 as an emergency; operative 4-20-92 (Register 92, No. 21). A Certificate of Compliance must be transmitted to OAL 8-18-92 or emergency language will be repealed by operation of law on the following day.
5. Repealer of emergency amendments and reinstatement of prior text filed 11-2-92 by operation of Government Code section 11346.1(f) (Register 92, No. 45).
6. Repealer and new text, amendment of Note, and repealer of Table CCWE filed 10-24-94 as an emergency; operative 10-24-94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2-20-95 or emergency language will be repealed by operation of law on the following day.

7. Repealer and new text, amendment of Note, and repealer of Table CCWE refiled 2-21-95 as an emergency; operative 2-21-95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6-21-95 or emergency language will be repealed by operation of law on the following day.
8. Repealer and new text, amendment of Note and repealer of Table CCWE refiled 6-19-95 as an emergency; operative 6-19-95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-95 or emergency language will be repealed by operation of law on the following day.
9. Repealer and new text, amendment of NOTE and repealer of Table CCWE refiled 10-16-95 as an emergency; operative 10-16-95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2-13-96 or emergency language will be repealed by operation of law on the following day.
10. Certificate of Compliance as to 10-24-94 order transmitted to OAL 12-15-95 and filed 1-31-96 (Register 96, No.5).
11. Change without regulatory effect repealing subsection (a) designator filed 8-15-97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 33).

§66268.42. Treatment Standards Expressed As Specified Technologies.

NOTE: For the requirements previously found in this section in Table 2 -- TECHNOLOGY-BASED STANDARDS BY RCRA WASTE CODE, and Table 3 -- TECHNOLOGY-BASED STANDARDS FOR SPECIFIC RADIOACTIVE HAZARDOUS MIXED WASTE, refer to section 66268.40 of this chapter.

(a) The following wastes in subsections (a)(1) and (a)(2) of this section and in the table in section 66268.40 "Treatment Standards for Hazardous Wastes," for which standards are expressed as a treatment method rather than a concentration level, shall be treated using the technology or technologies specified in the table entitled “Technology Codes and Description of Technology-Based Standards” in this section.

(1) Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm but less than 500 ppm shall be incinerated in accordance with the technical requirements of 40 CFR 761.70 or burned in high efficiency boilers in accordance with the technical requirements of 40 CFR 761.60. Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 500 ppm shall be incinerated in accordance with the technical requirements of 40 CFR 761.70. Thermal treatment under this section shall also be in compliance with applicable regulations in chapters 14, 15, and 16.

(2) Nonliquid hazardous wastes containing halogenated organic compounds (HOCs) in total concentration greater than or equal to 1,000 mg/kg and liquid HOC-containing wastes that are prohibited under section 66268.32(e)(1) of this chapter shall be incinerated in accordance with the requirements of chapter 14, article 15 or chapter 15, article 15. These treatment standards do not apply where the waste is subject to a chapter 18, article 4 treatment standard for a specific HOC (such as a hazardous waste chlorinated solvent for which a treatment standard is established under section 66268.41(a)).

(b) Any person may submit an application to the Department demonstrating that an alternative treatment method will result in a level of performance substantially equivalent or greater than that achievable using the method or methods specified in paragraphs (a), (c) and (d) of this section for wastes or hazardous debris specified in Table 1 of section 66268.45. The applicant shall demonstrate that the USEPA Administrator has approved the use of the alternative treatment method pursuant to 40 CFR 268.42(b). The approval shall demonstrate to the satisfaction of the Department that the method is in compliance with all federal, state and local requirements and is protective of human health and the environment. On the basis of such information and any other available information, the Department may approve the use of the alternative treatment method if the Department finds that the alternative treatment method will result in a level of performance substantially equivalent or greater than that achievable using the methods specified in subsections (a), (c) and (d) of this section for wastes or hazardous debris specified in Table 1 of section 66268.45. Any approval shall be stated in writing and may contain such provisions and conditions as the Department deems appropriate. The person to whom such approval is issued shall comply with all limitations contained in such a determination.

(c) As an alternative to the otherwise applicable article 4 treatment standards, lab packs are eligible for land disposal provided the following requirements are met:

(1) the lab packs comply with the applicable provisions of section 66264.316 and section 66265.316;

(2) the lab pack does not contain any of the wastes listed in Appendix IV to chapter 18;

(3) the lab packs are incinerated in accordance with the requirements of article 15, chapter 14 or article 15, chapter 15 and;

(4) any incinerator residues from lab packs containing D004, D005, D006, D007, D008, D010, and D011 are treated in compliance with the applicable treatment standards specified for such wastes in article 4, chapter 18.

(d) Radioactive hazardous mixed wastes are subject to the treatment standards in section 66268.40. Where treatment standards are specified for radioactive mixed wastes in the Table of Treatment Standards, those treatment standards will govern. Where there is no specific treatment standard for radioactive mixed waste, the treatment standard for the hazardous waste (as designated by EPA waste code) applies. Hazardous debris containing radioactive waste is subject to the treatment standards specified in section 66268.45.

Table 1 – Technology Codes and Description of Technology-Based Standards

Technology Code	Description of technology-based standards
ADGAS	Venting of compressed gases into an absorbing or reacting media (i.e., solid or liquid) – venting

Technology Code	Description of technology-based standards
	can be accomplished through physical release utilizing valves/piping, physical penetration of the container; and/or penetration through detonation.
AMLGM	Amalgamation of liquid, elemental mercury contaminated with radioactive materials utilizing inorganic reagents such as copper, zinc, nickel, gold, and sulfur that result in a nonliquid, semi-solid amalgam and thereby reducing potential emissions of elemental mercury vapors to the air.
BIODG	Biodegradation of organics or non-metallic inorganics (i.e., degradable inorganics that contain the elements of phosphorus, nitrogen, and sulfur) in units operated under either aerobic or anaerobic conditions such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., Total Organic Carbon can often be used as an indicator parameter for the biodegradation of many organic constituents that cannot be directly analyzed in wastewater residues).
CARBN	Carbon adsorption (granulated or powdered) of non-metallics, and/or organic constituents, operated such that a surrogate compound or indicator parameter has not undergone breakthrough (e.g., Total Organic Carbon can oftern be used as an indicator parameter for the adsorption of many organic constituents that cannot be directly analyzed in wastewater residues). Breakthrough occurs when the carbon has become saturated with the constituent (or indicator parameter) and substantial change in adsorption rate associated with that constituent occurs.
CHOXD	Chemical or electrolytic oxidation utilizing the following oxidation reagents (or waste reagents or combinations of reagents: (1) Hypochlorite (e.g. bleach); (2) chlorine; (3) chlorine dioxide; (4) Ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., Total Organic Carbon can often be used as an indicator parameter for the oxidation of many organic constituents that cannot be directly analyzed in wastewater residues). Chemical oxidation specifically includes what is commonly referred to as alkaline chlorination.
CHRED	Chemical reduction utilizing the following reducing reagents (or waste reagents) or combinations of reagents: (1) Sulfur dioxide; (2) sodium, potassium or alkali salts or sulfites, bisulfites, metabisulfites and polyethylene glycols (e.g., NaPEG and KPEG); (3) sodium hydrosulfide; (4) ferrous salts; and/or (5) other reducing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., Total Organic Halogens can often be used as an indicator parameter for the reduction of many halogenated organic constituents that cannot be directly analyzed in wastewater residues). Chemical reduction is commonly used for the reduction of hexavalent chromium to the trivalent state.
CMBST	High temperature organic destruction technologies, such as combustion in incinerators, boilers, or industrial furnaces operated in accordance with the applicable requirements of CCR, Title 22, division 4.5, chapter 14, article 14 or chapter 15, article 15 or chapter 16, article 8, and in other units operated in accordance with applicable technical operating requirements; and certain non-combustive technologies, such as the Catalytic Extraction Process.
DEACT	Deactivation to remove the hazardous characteristics of a waste due to its ignitability, corrosivity, and/or reactivity.
FSUBS	Fuel substitution in units operated in accordance with applicable technical operating requirements.
HLVIT	Vitrification of high level mixed radioactive wastes in units in compliance with all applicable radioactive protection requirements under control of the Nuclear Regulatory Commission.
IMERC	Incineration of wastes containing organics and mercury in units operated in accordance with the technical operating requirements of 40 CFR part 264, subpart O and 40 CFR part 265, subpart O. All wastewater and nonwastewater residues derived from this process shall then comply with the corresponding treatment standards per waste code with consideration of any applicable subcategories (e.g., High or Low Mercury Subcategories).
INCIN	Incineration in units operated in accordance with the technical operating requirements of 40 CFR part 264, subpart O and 40 CFR part 265, subpart O.

Technology Code	Description of technology-based standards
LLEXT	Liquid-liquid extraction (often referred to as solvent extraction) of organics from liquid wastes into an immiscible solvent for which the hazardous constituents have a greater solvent affinity, resulting in an extract high in organics that shall undergo either incineration, reuse as a fuel, or other recovery/reuse and a raffinate (extracted liquid waste) proportionately low in organics that shall undergo further treatment as specified in the standard.
MACRO	Macroencapsulation with surface coating materials such as polymeric organics (e.g., resins and plastics) or with a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media. Macroencapsulation specifically does not include any material that would be classified as a tank or container according to 40 CFR 260.10.
NEUTR	Neutralization with the following reagents (or waste reagents) or combinations of reagents: (1) Acids; (2) bases; or (3) water (including wastewaters) resulting in a pH greater than 2 but less than 12.5 as measured in the aqueous residuals.
POLYM	Formation of complex high-molecular weight solids through polymerization f monomers in high-TOC D001 non-wastewaters which are chemical components in the manufacture of plastics.
NLDBR	No land disposal based on recycling.
PRECP	Chemical precipitation of metals and other inorganics as insoluble precipitates of oxides, hydroxides, carbonates, sulfides, sulfates, chlorides, fluorides, or phosphates. The following reagents (or waste reagents) are typically used alone or in combination: (1) Lime (i.e., containing oxides and/or hydroxides of calcium and/or magnesium; (2) caustic (i.e., sodium and/or potassium hydroxides; (3) soda ash (i.e., sodium carbonate); (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; or (7) sodium sulfate. Additional flocculating, coagulation, or similar reagents/processes that enhance sludge dewatering characteristics are not precluded from use.
RBERY	Thermal recovery of Beryllium.
RCGAS	Recovery/reuse of compressed gases including techniques such as reprocessing of the gases for reuse/resale; filtering/adsorption of impurities; remixing for direct reuse of resale; and use of the gas as a fuel source.
RCORR	Recovery of acids or bases utilizing one or more of the following recovery technologies: (1)Distillation (i.e., thermal concentration); (2) ion exchange; (3) resin or solid adsorption; (4) reverse osmosis; and/or (5) incineration for the recovery of acid - Note: this does not preclude the use of other physical phase separation or concentration techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technologies.
RLEAD	Thermal recovery of lead in secondary lead smelters.
RMERC	Retorting or roasting in a thermal processing unit capable of volatilizing mercury and subsequently condensing the volatilized mercury for recovery. The retorting or roasting unit (or facility) must be subject to one or more of the following: (a) a National Emissions Standard for Hazardous Air Pollutants (NESHAP) for mercury; (b) a Best Available Control Technology (BACT) or a Lowest Achievable Emission Rate (LAER) standard for mercury imposed pursuant to a Prevention of Significant Deterioration (PSD) permit; or (c) a state permit that establishes emission limitations (within meaning of section 302 of the Clean Air Act) for mercury. All wastewater and nonwastewater residues derived from this process shall then comply with the corresponding treatment standards per waste code with consideration of any applicable subcategories (e.g., High or Low Mercury Subcategories).
RMETL	Recovery of metals or inorganics utilizing one or more of the following direct physical/removal technologies: (1) Ion exchange; (2) resin or solid (i.e., zeolites) adsorption; (3) reverse osmosis; (4) chelation/solvent extraction; (5) freeze crystallization; (6) ultrafiltration; and/or (7) simple precipitation (i.e., crystalization) - Note: this does not preclude the use of other physical phase separation or concentration techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technology.
RORGS	Recovery of organics utilizing one or more of the following technologies: (1) Distillation; (2) thin film evaporators; (3) steam stripping; (4) carbon adsorption; (5) critical fluid extraction; (6) Liquid-liquid extraction; (7) precipitation/crystallization (including freeze crystallization); or (8) chemical phase separation techniques (i.e., addition of acids, bases, demulsifiers, or similar

Technology Code	Description of technology-based standards
	chemicals); Note: This does not preclude the use of other physical phase separation techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technologies.
RTHRM	Thermal recovery of metals or inorganics from nonwastewaters in units defined in 40 CFR 260.10, paragraphs (1), (6), (7), (11), and (12), under the definition of "industrial furnaces".
RZINC	Resmelting in high temperature metal recovery units for the purpose of recovery of zinc.
STABL	Stabilization with the following reagents (or waste reagents) or combinations of reagents: (1) Portland cement; or (2) lime/pozzolans (e.g., fly ash and cement kiln dust) - this does not preclude the addition of reagents (e.g., iron salts, silicates, and clays) designed to enhance the set/cure time and/or compressive strength, or to overall reduce the leachability of the metal or inorganic.
SSTRP	Steam stripping of organics from liquid wastes utilizing direct application of steam to the wastes operated such that liquid and vapor flow rates, as well as, temperature and pressure ranges have been optimized, monitored, and maintained. These operating parameters are dependent upon the design parameters of the unit such as, the number of separation stages and the internal column design. Thus, resulting in a condensed extract high in organics that shall undergo either incineration, reuse as a fuel, or other recovery/reuse and an extracted wastewater that shall undergo further treatment as specified in the standard.
WETOX	Wet air oxidation performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., Total Organic Carbon can often be used as an indicator parameter for the oxidation of many organic constituents that cannot be directly analyzed in wastewater residues).
WTRRX	Controlled reaction with water for highly reactive inorganic or organic chemicals with precautionary controls for protection of workers from potential violent reactions as well as precautionary controls for potential emissions of toxic/ignitable levels of gases released during the reaction.

NOTE: Authority cited: Sections, 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code. Reference: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code; 40 CFR Section 268.42.

HISTORY

1. New section filed 5-24-91; operative 7-1-91 (Register 91, No. 22).
2. Amendment of section, Note and Table 1 and repealer of Tables 2 and 3 filed 10-24-94 as an emergency; operative 10-24-94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2-20-95 or emergency language will be repealed by operation of law on the following day.
3. Amendment of section, Note and Table 1 and repealer of Tables 2 and 3 refiled 2-21-95 as an emergency; operative 2-21-95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6-21-95 or emergency language will be repealed by operation of law on the following day.
4. Amendment of section, Note and Table 1 and repealer of Tables 2 and 3 refiled 6-19-95 as an emergency; operative 6-19-95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-95 or emergency language will be repealed by operation of law on the following day.
5. Amendment of section, Note and Table 1 and repealer of Tables 2 and 3 refiled 10-16-95 as an emergency; operative 10-16-95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2-13-96 or emergency language will be repealed by operation of law on the following day.
6. Certificate of Compliance as to 10-24-94 order including new subsection (a)(3) and amendment of subsection (b) and table 1 transmitted to OAL 12-15-95 and filed 1-31-96 (Register 96, No. 5).
7. Change without regulatory effect repealing and adopting new subsection (a), repealing subsection (a)(3), and amending table filed 6-4-99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 23).
8. Change without regulatory effect amending Table I filed 2—26—2004 pursuant to section 100, title 1, California Code of Regulations (Register 2004, No. 9).

§66268.43. Treatment Standards Expressed As Waste Concentrations.

For the requirements previously found in this section and for treatment standards in Table CCW -- Constituent Concentrations in Wastes, refer to section 66268.40.

NOTE: Authority cited: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code. Reference: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code; 40 CFR Section 268.43.

HISTORY

1. New section filed 5-24-91; operative 7-1-91 (Register 91, No. 22).
2. Repealer and new text, amendment of Note and repealer of tables filed 10-24-94 as an emergency; operative

10-24-94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2-20-95 or emergency language will be repealed by operation of law on the following day.
3. Repealer and new text, amendment of Note and repealer of tables refiled 2-21-95 as an emergency; operative 2-21-95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6-21-95 or emergency language will be repealed by operation of law on the following day.
4. Repealer and new text, amendment of Note and repealer of tables refiled 6-19-95 as an emergency; operative 6-19-95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-95 or emergency language will be repealed by operation of law on the following day.
5. Repealer and new text, amendment of Note and repealer of tables refiled 10-16-95 as an emergency; operative 10-16-95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2-13-96 or emergency language will be repealed by operation of law on the following day.
6. Certificate of Compliance as to 10-24-94 order transmitted to OAL 12-15-95 and filed 1-31-96 (Register 96, No. 5).

§66268.44. Variance from a Treatment Standard.

(a) Based on a petition filed by a generator or treater of RCRA hazardous waste, the USEPA Administrator may approve a variance from an applicable treatment standard if:

(1) It is not physically possible to treat the waste to the level specified in the treatment standard, or by the method specified as the treatment standard. To show that this is the case, the petitioner shall demonstrate that because the physical or chemical properties of the waste differ significantly from waste analyzed in developing the treatment standard, the waste cannot be treated to the specified level or by the specified method; or

(2) It is inappropriate to require the waste to be treated to the level specified in the treatment standard or by the method specified as the treatment standard, even though such treatment is technically possible. To show that this is the case, the petitioner shall either demonstrate that:

(A) Treatment to the specified level or by the specified method is technically inappropriate (for example, resulting in combustion of large amounts of mildly contaminated environmental media); or

(B) For remediation waste only, treatment to the specified level or by the specified method is environmentally inappropriate because it would likely discourage aggressive remediation.

(b) For hazardous waste subject to RCRA land disposal restrictions set forth in article 4 of this chapter, the applicant shall petition the U.S. EPA Administrator for a variance from a treatment standard pursuant to 40 CFR section 268.44. Within 30 days after the applicant has received from the U.S. EPA Administrator an approved variance from a treatment standard, the applicant shall submit to the Department a copy of the approved variance.

(c) For hazardous waste listed in section 66268.29 of this chapter subject to non-RCRA land disposal restrictions set forth in article 11 of this chapter, the applicant shall petition the Department for a variance from a treatment standard pursuant to this section and section 25179.8, Health and Safety Code. Each petitioner shall demonstrate that all the following conditions apply to the waste.

(1) The hazardous waste cannot be recycled, reused, or treated to meet the standards adopted by the department pursuant to section 25179.6 California Health and Safety Code at a commercial offsite hazardous waste facility in the state.

(2) Recycling or treatment alternatives cannot be provided at the site of generation.

(3) Measures have been, or will be, taken to reduce the generation of the hazardous waste.

(4) Land disposal of the hazardous waste is in compliance with all existing statutes and regulations.

(d) A generator, treatment facility, or disposal facility that is managing a waste covered by a variance from the treatment standards shall comply with the waste analysis requirements for restricted wastes found under section 66268.7.

(e) During the petition review process, the applicant is required to comply with all restrictions on land disposal under this chapter once the effective date for the waste has been reached.

(f) Based on a petition filed by a generator or treater of RCRA hazardous waste, the Department may approve a site-specific variance from an applicable treatment standard pursuant to this section and Health and Safety Code section 25179.8 if:

(1) It is not physically possible to treat the waste to the level specified in the treatment standard, or by the method specified as the treatment standard. To show that this is the case, the petitioner shall demonstrate that because the physical or chemical properties of the waste differ significantly from waste analyzed in developing the treatment standard, the waste cannot be treated to the specified level or by the specified method; or

(2) It is inappropriate to require the waste to be treated to the level specified in the treatment standard or by the method specified as the treatment standard, even though such treatment is technically possible. To show that this is the case, the petitioner shall either demonstrate that:

(A) Treatment to the specified level or by the specified method is technically inappropriate (for example, resulting in combustion of large amounts of mildly contaminated environmental media where the treatment standard is not based on combustion of such media); or

(B) For remediation waste only, treatment to the specified level or by the specified method is environmentally inappropriate because it would likely discourage aggressive remediation.

(3) For contaminated soil only, treatment to the level or by the method specified in the soil treatment standards would result in concentrations of hazardous constituents that are below (i.e., lower than) the concentrations necessary to minimize short- and long-term threats to human health and the environment. Treatment variances approved under this subsection shall:

(A) At a minimum, impose alternative land disposal restriction treatment standards that, using a reasonable

maximum exposure scenario:

1. for carcinogens, achieve constituent concentrations that result in the total excess risk to an individual exposed over a lifetime generally falling within a range from 10^{-4} to 10^{-6}; and

2. for constituents with non-carcinogenic effects, achieve constituent concentrations that an individual could be exposed to on a daily basis without appreciable risk of deleterious effect during a lifetime.

(B) not consider post-land-disposal controls.

(4) For contaminated soil only, treatment to the level or by the method specified in the soil treatment standards would result in concentrations of hazardous constituents that are below (i.e., lower than) natural background concentrations at the site where the contaminated soil will land disposed.

(5) Public notice and a reasonable opportunity for public comment shall be provided before granting or denying a petition.

(g) Each petition shall be submitted to the Department by certified mail and shall include:

(1) The petitioner's name and address;

(2) A statement of the petitioner's interest in the proposed action;

(3) A description of the proposed action, including (where appropriate) suggested regulatory language; and

(4) A statement of the need and justification for the proposed action, including any supporting tests, studies, or other information.

(h) For hazardous waste listed in section 66268.29 of this chapter subject to non-RCRA land disposal restrictions set forth in article 11 of this chapter, the applicant shall petition the Department for a site-specific variance from a treatment standard pursuant to this section and section 25179.8, Health and Safety Code. Each petitioner for a site-specific variance shall demonstrate that all the following conditions apply to the waste.

(1) The hazardous waste cannot be recycled, reused, or treated to meet the standards adopted by the department pursuant to section 25179.6 California Health and Safety Code at a commercial offsite hazardous waste facility in the state.

(2) Recycling or treatment alternatives cannot be provided at the site of generation.

(3) Measures have been, or will be, taken to reduce the generation of the hazardous waste.

(4) Land disposal of the hazardous waste is in compliance with all existing statutes and regulations. (i) A generator, treatment facility, or disposal facility that is managing a waste covered by a site-specific variance from a treatment standard shall comply with the waste analysis requirements for restricted wastes found under section 66268.7.

(j) During the application review process, the applicant for a site-specific variance shall comply with all restrictions on land disposal under this chapter once the effective date for the waste has been reached.

(k) After receiving a petition pursuant to subsections (c), (f), and (h) for variance from a treatment standard, the Department may request any additional information or samples which the Department may require to evaluate the petition. Additional copies of the petition may be requested as needed. Within 45 days of the receipt of the petition, the Department shall inform the petitioner, in writing, that the petition is complete and accepted for filing, or that the petition is deficient and what specific information is required.

(*l*) The Department shall make a decision on a petition pursuant to subsections (c), (f), and (h) for variance from a treatment standard within 120 days of the filing of a completed petition.

(m) For all variances, the petitioner shall also demonstrate that compliance with any given treatment variance is sufficient to minimize threats to human health and the environment posed by land disposal of the waste. In evaluating this demonstration, the Department may take into account whether a treatment variance should be approved if the subject waste is to be used in a manner constituting disposal.

NOTE: Authority cited: Sections 25150, 25159, 25179.5, 25179.6 and 58012, Health and Safety Code and Section 15376, Government Code. Reference: Sections 25150, 25159, 25159.5 and 25179.8, Health and Safety Code; Section 15376, Government Code; 40 CFR Section 268.44.

HISTORY

1. New section filed 5-24-91; operative 7-1-91 (Register 91, No. 22).
2. Amendment of subsections (a)-(c) and (f)-(h) filed 7-23-97; operative 8-22-97 (Register 97, No. 30).
3. Change without regulatory effect amending section and NOTE filed 6-4-99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 23).

§66268.45. Treatment Standards for Hazardous Debris.

(a) *Treatment standards*. Hazardous debris shall be treated prior to land disposal as follows unless the Department determines under section 66261.3(e)(2) of this division that the debris is no longer contaminated with hazardous waste or the debris is treated to the waste-specific treatment standard provided in this article for the waste contaminating the debris;

(1) *General*. Hazardous debris shall be treated for each "contaminant subject to treatment" defined by paragraph (b) of this section using the technology or technologies identified in Table 1 of this section.

(2) *Characteristic debris*. Hazardous debris that exhibits the characteristic of ignitability, corrosivity, or reactivity identified under sections 66261.21, 66261.22, and 66261.23, respectively, shall be deactivated by treatment using one of the technologies identified in Table 1 of this section.

(3) *Mixtures of debris types*. The treatment standards of Table 1 in this section shall be achieved for each type of debris contained in a mixture of debris types. If an immobilization technology is used in a treatment train, it shall be the last treatment technology used.

(4) *Mixtures of contaminant types*. Debris that is contaminated with two or more contaminants subject to treatment identified under paragraph (b) of this section shall be treated for each contaminant using one or more treatment technologies identified in Table 1 of this section. If an immobilization technology is used in a treatment train, it shall be the last treatment technology used.

(5) *Waste PCBs*. Hazardous debris that is also a waste PCB under 40 CFR part 761 is subject to the requirements of either 40 CFR part 761 or the requirements of this section, whichever are more stringent.

(b) *Contaminants subject to treatment*. Hazardous debris shall be treated for each "contaminant subject to treatment." The contaminants subject to treatment shall be determined as follows:

(1) *Toxicity characteristic debris*. The contaminants subject to treatment for debris that exhibits the Toxicity Characteristic (TC) by section 66261.24(a)(1) are those EP constituents for which the debris exhibits the TC toxicity characteristic.

(2) *Debris contaminated with listed waste*. The contaminants subject to treatment for debris that is contaminated with a prohibited listed hazardous waste are those constituents or wastes for which treatment standards are established for the waste under section 66268.40.

(3) *Cyanide reactive debris*. Hazardous debris that is reactive because of cyanide shall be treated for cyanide.

(c) *Conditioned exclusion of treated debris*. Hazardous debris that has been treated using one of the specified extraction or destruction technologies in Table 1 of this section and that does not exhibit a characteristic of hazardous waste as identified in article 3 of chapter 11 of this division after treatment is not a hazardous waste and need not be managed in a hazardous waste facility. Hazardous debris contaminated with a listed waste that is treated by an immobilization technology specified in Table 1 is a hazardous waste and shall be managed in a hazardous waste facility.

(d) *Treatment residuals - (1) General Requirements*. Except as provided by paragraphs (d)(2) and (d)(4) of this section:

(A) Residue from the treatment of hazardous debris shall be separated from the treated debris using simple physical or mechanical means; and

(B) Residue from the treatment of hazardous debris is subject to the waste-specific treatment standards provided by article 4 of this chapter for the waste contaminating the debris.

(2) *Nontoxic debris*. Residue from the deactivation of ignitable, corrosive, or reactive characteristic hazardous debris (other than cyanide-reactive) that is not contaminated with a contaminant subject to treatment defined by subsection (b) of this section, shall be deactivated prior to land disposal and is not subject to the waste-specific treatment standards of article 4 of this chapter.

(3) *Cyanide-reactive debris*. Residue from the treatment of debris that is reactive because of cyanide shall meet the treatment standards for D003 in “Treatment Standards for Hazardous Wastes” under section 66268.40.

(4) *Ignitable nonwastewater residue*. Ignitable nonwastewater residue containing equal to or greater than 10% total organic carbon is subject to the technology specified in the treatment standard for D001: Ignitable Liquids.

(5) *Residue from spalling*. Layers of debris removed by spalling are hazardous debris that remain subject to the treatment standards of this section.

Table 1 -- Alternative Treatment Standards for Hazardous Debris[1]

Technology description	*Performance and/or design and operating standard*	*Contaminant restrictions*[2]
A. Extraction Technologies 1. Physical Extraction a. *Abrasive Blasting:* Removal of contaminated debris surface layers using water and/or air pressure to propel a solid media (e.g., steel shot, aluminum oxide grit, plastic beads).	*Glass, Metal Plastic, Rubber:* Treatment to a clean debris surface.[3] *Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood:* Removal of at least 0.6 cm of the surface layer; treatment to a clean debris surface.[3]	*All Debris:* None.
b. *Scarification, Grinding, and Planing:* Process utilizing striking piston heads, saws, or rotating grinding wheels such that contaminated debris surface layers are removed.	Same as above.	Same as above.
c. *Spalling:* Drilling or chipping holes at appropriate locations and depth in the contaminated debris surface and applying a tool which exerts a force on the sides of those holes such that the surface layer is removed. The surface layer removed remains hazardous debris subject to the debris treatment standards.	Same as above.	Same as above.
d. *Vibratory Finishing:* Process utilizing scrubbing	Same as above.	Same as above.

Technology description	*Performance and/or design and operating standard*	*Contaminant restrictions*[2]
media, flushing fluid, and oscillating energy such that hazardous contaminants or contaminated debris surface layers are removed.[4]		
e. *High Pressure Steam and Water Sprays:* Application of water or steam sprays of sufficient temperature, pressure, residence time, agitation, surfactants, and detergents to remove hazardous contaminants from debris surfaces or to remove contaminated debris surface layers.	Same as above.	Same as above.
2. Chemical Extraction a. *Water Washing and Spraying:* Application of water sprays or water baths of sufficient temperature, pressure, residence time, agitation, surfactants, acids, bases, and detergents to remove hazardous contaminants from debris surfaces and surface pores or to remove contaminated debris surface layers.	*All Debris:* Treatment to a clean debris surface;[3] *Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood:* Debris shall be no more than 1.2 cm (1/2 inch) in one dimension (i.e., thickness limit,[5] except that this thickness limit may be waived under an "Equivalent Technology" approval under section 66268.42(b);[8] debris surfaces shall be in contact with water solution for at least 15 minutes.	*Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood:* Contaminant shall be soluble to at least 5% by weight in water solution or 5% by weight in emulsion; if debris is contaminated with a dioxin-listed waste,[6] and "Equivalent Technology" approval under section 66268.42(b) shall be obtained.[8]
Technology description	Performance and/or design and operating standard	Contaminant restrictions2
b. *Liquid Phase Solvent Extraction:* Removal of hazardous contaminants from debris surfaces and surface pores by applying a nonaqueous liquid or liquid solution which causes the hazardous contaminants to enter the liquid phase and be flushed away from the debris along with the liquid or liquid solution while using appropriate agitation, temperature, and residence time.[4]	Same as above.	*Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood:* Same as above, except that contaminant shall be soluble to at least 5% by weight in the solvent.
c. *Vapor Phase Solvent Extraction:* Application of an organic vapor using sufficient agitation, residence time, and temperature to cause hazardous contaminants on contaminated debris surfaces and surface pores to enter the vapor phase and be flushed away with the organic vapor.[4]	Same as above, except that brick, cloth, concrete, paper, pavement, rock and wood surfaces shall be in contact with the organic vapor for at least 60 minutes.	Same as above.
3. Thermal Extraction a. *High Temperature Metals Recovery:* Application of sufficient heat, residence time, mixing, fluxing agents, and/or carbon in a smelting, melting, or refining furnace to separate metals from debris.	For refining furnaces, treated debris shall be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such residuals shall meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris.	*Debris contaminated with a dioxin-listed waste:*[5] Obtain an "Equivalent Technology" approval under section 66268.42(b).[8]
b. *Thermal Desorption:* Heating in an enclosed chamber under either oxidizing or nonoxidizing atmospheres at sufficient temperature and residence time to vaporize hazardous contaminants from contaminated surfaces and the surface pores and to remove the contaminants from the heating	*All Debris:* Obtain an "Equivalent Technology" approval under section 66268.42(b);[8] treated debris shall be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such	*All Debris:* Metals other than mercury.

chamber in a gaseous exhaust gas.[7]	residues shall meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris. *Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood:* Debris shall be no more than 10 cm (4 inches) in one dimension (i.e., thickness limit),[5] except that this thickness limit may be waived under the "Equivalent Technology" approval.	
Technology description	Performance and/or design and operating standard	Contaminant restrictions2
B. Destruction Technologies 1. *Biological Destruction (Biodegradation):* Removal of hazardous contaminants from debris surfaces and surface pores in an aqueous solution and biodegration of organic or nonmetallic inorganic compounds (i.e., inorganics that contain phosphorus, nitrogen, or sulfur) in units operated under either aerobic or anaerobic conditions.	*All Debris:* Obtain an "Equivalent Technology" approval under section 66268.42(b);[8] treated debris shall be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such residues shall meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris. *Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood:* Debris shall be no more than 1.2 cm (1/2 inch) in one dimension (i.e., thickness limit),[5] except that this thickness limit may be waived under the "Equivalent Technology" approval.	*All Debris:* Metal contaminants.
2. Chemical Destruction a. *Chemical Oxidation:* Chemical or electrolytic oxidation utilizing the following oxidation reagents (or waste reagents) or combination of reagents–(1) hypochlorite (e.g., bleach); (2) chlorine; (3) Chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent destruction efficiency.[4] Chemical oxidation specifically includes what is referred to as alkaline chlorination.	*All Debris:* Obtain an "Equivalent Technology" approval under section 66268.42(b);[8] treated debris shall be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such residues shall meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris. *Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood:* Debris shall be no more than 1.2 cm (1/2 inch) in one dimension (i.e., thickness limit),[5] except that this thickness limit may be waived under the "Equivalent Technology" approval.	*All Debris:* Metal contaminants.
b. Chemical Reduction: Chemical reaction utilizing the following reducing reagents (or waste reagents) or combination of reagents: (1) sulfur dioxide; (2) sodium, potassium, or alkali slats of sulfites, bisulfites, and metabisulfites, and polyethylene glycols (e.g., NaPEG and KPEG); (3) sodium hydrosulfide; (4) ferrous salts; and/or (5) other reducing reagents of equivalent efficiency.[4]	Same as above.	Same as above.
Technology description	Performance and/or design and operating standard	Contaminant restrictions2
3. *Thermal Destruction:* Treatment in an incinerator operating in accordance with CCR, Title 22, Chapter 14, article 15, or Chapter 15, article 15, of this division; a boiler or industrial furnace operating in accordance with 40 CFR Part 266, Subpart H, or other thermal treatment unit operated	Treated debris shall be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such residue shall meet the waste-specific treatment standard for organic compounds in the waste	*Brick, Concrete, Glass, Metal, Pavement, Rock, Metal:* Metals other than mercury, except that there are no metal restrictions for vitrification.

in accordance with 40 CFR Part 264, Subpart X or 40 CFR Part 265, Subpart P, but excluding for purposes of these debris treatment standards Thermal Desorption units.	contaminating the debris.	*Debris contaminated with a dioxin-listed waste:* [6] Obtain an "Equivalent Technology" approval under section 66268.42(b),[8] except that this requirement does not apply to vitrification.
C. Immobilization Technologies 1. *Macroencapsulation:* Application of surface coating materials such as polymeric organics (e.g., resins and plastics) or use of a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media.	Encapsulating material shall completely encapsulate debris and be resistant to degradation by the debris and its contaminants and materials into which it may come into contact after placement (leachate, other waste, microbes).	None.
2. *Microencapsulation:* Stabilization of the debris with the following reagents (or waste reagents) such that the leachability of the hazardous contaminants is reduced: (1) Portland cement; or (2) lime/pozzolans (e.g., fly ash and cement kiln dust). Reagents (e.g., iron salts, silicates, and clays) may be added to enhance the set/cure time and/or compressive strength, or to reduce the leachability of the hazardous constituents.[5]	Leachability of the hazardous contaminants shall be reduced.	None.
3. *Sealing:* Application of an appropriate material which adheres tightly to the debris surface to avoid exposure of the surface to potential leaching media. When necessary to effectively seal the surface, sealing entails pretreatment of the debris surface to remove foreign matter and to clean and roughen the surface. Sealing materials include epoxy, silicone, and urethane compounds, but paint may not be used as a sealant.	Sealing shall avoid exposure of the debris surface to potential leaching media and sealant shall be resistant to degradation by the debris and its contaminants and materials into which it may come into contact after placement (leachate, other waste, microbes).	None.

[1] Hazardous debris shall be treated by either these standards or the waste-specific treatment standards for the waste contaminating the debris. The treatment standards shall be met for each type of debris contained in a mixture of debris types, unless the debris is converted into treatment residue as a result of the treatment process. Debris treatment residuals are subject to the waste-specific treatment standards for the waste contaminating the debris.

[2] Contaminant restriction means that the technology is not BDAT for that contaminant. If debris containing a restricted contaminant is treated by the technology, the contaminant shall be subsequently treated by a technology for which it is not restricted in order to be land disposed (and excluded from the requirements of this division).

[3] "Clean debris surface" means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area.

[4] Acids, solvents, and chemical reagents may react with some debris and contaminants to form hazardous compounds. For example, acid washing of cyanide-contaminated debris could result in the formation of hydrogen cyanide. Some acids may also react violently with some debris and contaminants, depending on the concentration of the acid and the type of debris and contaminants. Debris treaters should refer to the safety precautions specified in Material Safety Data Sheets for various acids to avoid applying an incompatible acid to a particular debris/contaminant combination. For example, concentrated sulfuric acid may react violently with certain organic compounds, such as acrylonitrile.

[5] If reducing the particle size of debris to meet the treatment standards results in material that no longer meets the 60 mm minimum particle size limit for debris, such material is subject to the waste-specific treatment standards for the waste contaminating the material, unless the debris has been cleaned and separated from contaminated soil and waste prior to size reduction. At a minimum, simple physical or mechanical means shall be used to provide such cleaning and separation of nondebris materials to ensure that the debris surface is free of caked soil, waste or other nondebris material.

[6] Dioxin-listed wastes are EPA Hazardous Waste numbers F020, F021, F022, F023, F026, and F027.

[7] Thermal desorption is distinguished from Thermal Destruction in that the primary purpose of Thermal Desorption is to volatilize contaminants and to remove them from the treatment chamber for subsequent destruction

or other treatment.

[8] The demonstration "Equivalent Technology" under section 66268.42(b) shall document that the technology treats contaminants subject to treatment to a level equivalent to that required by the performance and design and operating standards for other technologies in this table such that residual levels of hazardous contaminants will not pose a hazard to human health and the environment absent management controls.

[9] Any soil, waste, and other nondebris material that remains on the debris surface (or remains mixed with the debris) after treatment is considered a treatment residual that shall be separated from the debris using, at a minimum, simple physical or mechanical means. Examples of simple physical or mechanical means are vibratory or trommel screening or water washing. The debris surface need not be cleaned to a "clean debris surface" as defined in note 3 when separating treated debris from residue; rather, the surface shall be free of caked soil, waste, or other nondebris material. Treatment residuals are subject to the waste-specific treatment standards for the waste contaminating the debris.

NOTE: Authority cited: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code. Reference: Sections 25159, 25159.5 and 58012, Health and Safety Code; 40 CFR Section 268.45.

HISTORY

1. New section and Table 1 filed 10-24-94 as an emergency; operative 10-24-94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2-20-95 or emergency language will be repealed by operation of law on the following day.
2. New section and Table 1 refiled 2-21-95 as an emergency; operative 2-21-95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6-21-95 or emergency language will be repealed by operation of law on the following day.
3. New section and Table 1 refiled 6-19-95 as an emergency; operative 6-19-95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-95 or emergency language will be repealed by operation of law on the following day.
4. New section and Table 1 refiled 10-16-95 as an emergency; operative 10-16-95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2-13-96 or emergency language will be repealed by operation of law on the following day.
5. Certificate of Compliance as to 10-24-94 order including amendment of subsections (a)-(b)(1), (b)(3), (c), (d)(1), (d)(1)(A) and (d)(2)-(3) and amendment of Table 1 transmitted to OAL 12-15-95 and filed 1-31-96 (Register 96, No. 5).
6. Change without regulatory effect amending subsections (a), (c), (d)(1)(B) and (d)(2) and footnote 8 of Table 1 filed 8-15-97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 33).
7. Change without regulatory effect amending subsections (a), (b)(1), (d)(3) and (d)(4) filed 6-4-99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 23).
8. Change without regulatory effect amending subsection (c)(4) filed 6—7—2004 pursuant to section100, title 100, California Code of Regulations (Register 2004, No. 24).

§66268.46. Alternative Treatment Standards Based on HTMR.

For the treatment standards previously found in this section, refer to section 66268.40.

NOTE: Authority cited: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code. Reference: Sections 25159, 25159.5 and 58012, Health and Safety Code; 40 CFR Section 268.46.

HISTORY

1. New section filed 10-24-94 as an emergency; operative 10-24-94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2-20-95 or emergency language will be repealed by operation of law on the following day.
2. New section refiled 2-21-95 as an emergency; operative 2-21-95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6-21-95 or emergency language will be repealed by operation of law on the following day.
3. New section refiled 6-19-95 as an emergency; operative 6-19-95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-95 or emergency language will be repealed by operation of law on the following day.
4. New section refiled 10-16-95 as an emergency; operative 10-16-95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2-13-96 or emergency language will be repealed by operation of law on the following day.
5. Certificate of Compliance as to 10-24-94 order transmitted to OAL 12-15-95 and filed 1-31-96 (Register 96, No. 5).

§66268.48. Universal Treatment Standards.

(a) Table UTS identifies the hazardous constituents, along with the nonwastewater and wastewater treatment standard levels, that are used to regulate most prohibited hazardous wastes with numerical limits. For determining compliance with treatment standards for underlying hazardous constituents as defined in section 66260.10, these treatment standards may not be exceeded. Compliance with these treatment standards is measured by an analysis of grab samples, unless otherwise noted in the following Table UTS.

UNIVERSAL TREATMENT STANDARDS NOTE: NA means not applicable

REGULATED CONSTITUENT Common Name	CAS[1] Number	Wastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Organic Constituents			
A2213 [6]	30558-43-1	0.042	1.4
Acenaphthylene	208-96-8	0.059	3.4
Acenaphthene	83-32-9	0.059	3.4
Acetone	67-64-1	0.28	160
Acetonitrile	75-05-8	5.6	38
Acetophenone	96-86-2	0.010	9.7
2-Acetylaminofluorene	53-96-3	0.059	140
Acrolein	107-02-8	0.29	NA
Acrylamide	79-06-1	19	23
Acrylonitrile	107-13-1	0.24	84
Aldicarb sulfone [6]	1646-88-4	0.056	0.28
Aldrin	309-00-2	0.021	0.066
4-Aminobiphenyl	92-67-1	0.13	NA
Aniline	62-53-3	0.81	14
Anthracene	120-12-7	0.059	3.4
Aramite	140-57-8	0.36	NA
alpha-BHC	319-84-6	0.00014	0.066
beta-BHC	319-85-7	0.00014	0.066
delta-BHC	319-86-8	0.023	0.066
gamma-BHC	58-89-9	0.0017	0.066
Barban [6]	101-27-9	0.056	1.4
Bendiocarb [6]	22781-23-3	0.056	1.4
Bendiocarb phenol [6]	22961-82-6	0.056	1.4
Benomyl [6]	17804-35-2	0.056	1.4
Benzene	71-43-2	0.14	10
Benz(a)anthracene	56-55-3	0.059	3.4
Benzal chloride	98-87-3	0.055	6.0
Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8

REGULATED CONSTITUENT Common Name	CAS[1] Number	Wastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Benzo(g,h,i)perylene	191-24-2	0.0055	1.8
Benzo(a)pyrene	50-32-8	0.061	3.4
Bromodichloromethane	75-27-4	0.35	15
Bromomethane/Methyl bromide	74-83-9	0.11	15
4-Bromophenyl phenyl ether	101-55-3	0.055	15
n-Butyl alcohol	71-36-3	5.6	2.6
Butylate [6]	2008-41-5	0.042	1.4
Butyl benzyl phthalate	85-68-7	0.017	28
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	0.066	2.5
Carbaryl [6]	63-25-2	0.006	0.14
Carbenzadim [6]	10605-21-7	0.056	1.4
Carbofuran [6]	1563-66-2	0.006	0.14
Carbofuran phenol [6]	1563-38-8	0.056	1.4
Carbon disulfide	75-15-0	3.8	4.8 mg/l TCLP
Carbon tetrachloride	56-23-5	0.057	6.0
Carbosulfan [6]	55285-14-8	0.028	1.4
Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26
p-Chloroaniline	106-47-8	0.46	16
Chlorobenzene	108-90-7	0.057	6.0
Chlorobenzilate	510-15-6	0.10	NA
2-Chloro-1,3-butadiene	126-99-8	0.057	0.28
Chlorodibromomethane	124-48-1	0.057	15
Chloroethane	75-00-3	0.27	6.0
bis(2-Chloroethoxy)methane	111-91-1	0.036	7.2
bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
Chloroform	67-66-3	0.046	6.0
bis(2-Chloroisopropyl)ether	39638-32-9	0.055	7.2
p-Chloro-m-cresol	59-50-7	0.018	14
2-Chloroethyl vinyl ether	110-75-8	0.062	NA
Chloromethane/Methyl chloride	74-87-3	0.19	30
2-Chloronaphthalene	91-58-7	0.055	5.6

REGULATED CONSTITUENT Common Name	CAS[1] Number	Wastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
2-Chlorophenol	95-57-8	0.044	5.7
3-Chloropropylene	107-05-1	0.036	30
Chrysene	218-01-9	0.059	3.4
o-Cresol	95-48-7	0.11	5.6
m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
m-Cumenyl methylcarbamate [6]	64-00-6	0.056	1.4
Cyclohexanone	108-94-1	0.36	0.75 mg/l TCLP
o,p'-DDD	53-19-0	0.023	0.087
p,p'-DDD	72-54-8	0.023	0.087
o,p'-DDE	3424-82-6	0.031	0.087
p,p'-DDE	72-55-9	0.031	0.087
o,p'-DDT	789-02-6	0.0039	0.087
p,p'-DDT	50-29-3	0.0039	0.087
Dibenz(a,h)anthracene	53-70-3	0.055	8.2
Dibenz(a,e)pyrene	192-65-4	0.061	NA
1,2-Dibromo-3-chloropropane	96-12-8	0.11	15
1,2-Dibromoethane/Ethylene dibromide	106-93-4	0.028	15
Dibromomethane	74-95-3	0.11	15
m-Dichlorobenzene	541-73-1	0.036	6.0
o-Dichlorobenzene	95-50-1	0.088	6.0
p-Dichlorobenzene	106-46-7	0.090	6.0
Dichlorodifluoromethane	75-71-8	0.23	7.2
1,1-Dichloroethane	75-34-3	0.059	6.0
1,2-Dichloroethane	107-06-2	0.21	6.0
1,1-Dichloroethylene	75-35-4	0.025	6.0
trans-1,2-Dichloroethylene	156-60-5	0.054	30
2,4-Dichlorophenol	120-83-2	0.044	14
2,6-Dichlorophenol	87-65-0	0.044	14
2,4-Dichlorophenoxyacetic acid/2,4-D	94-75-7	0.72	10
1,2-Dichloropropane	78-87-5	0.85	18

REGULATED CONSTITUENT Common Name	CAS[1] Number	Wastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
cis-1,3-Dichloropropylene	10061-01-5	0.036	18
trans-1,3-Dichloropropylene	10061-02-6	0.036	18
Dieldrin	60-57-1	0.017	0.13
Diethylene glycol, dicarbamate [6]	5952-26-1	0.056	1.4
Diethyl phthalate	84-66-2	0.20	28
p-Dimethylaminoazobenzene	60-11-7	0.13	NA
2-4-Dimethyl phenol	105-67-9	0.036	14
Dimethyl phthalate	131-11-3	0.047	28
Dimetilan [6]	644-64-4	0.056	1.4
Di-n-butyl phthalate	84-74-2	0.057	28
1,4-Dinitrobenzene	100-25-4	0.32	2.3
4,6-Dinitro-o-cresol	534-52-1	0.28	160
2,4-Dinitrophenol	51-28-5	0.12	160
2,4-Dinitrotoluene	121-14-2	0.32	140
2,6-Dinitrotoluene	606-20-2	0.55	28
Di-n-octyl phthalate	117-84-0	0.017	28
Di-n-propylnitrosamine	621-64-7	0.40	14
1,4-Dioxane	123-91-1	12.0	170
Diphenylamine (difficult to distinguish from diphenylnitrosamine)	122-39-4	0.92	13
Diphenylnitrosamine (difficult to distinguish from diphenylamine)	86-30-6	0.92	13
1,2-Diphenylhydrazine	122-66-7	0.087	NA
Disulfoton	298-04-4	0.017	6.2
Dithiocarbamates (total) [6]	NA	0.028	28
Endosulfan I	959-98-8	0.023	0.066
Endosulfan II	33213-65-9	0.029	0.13
Endosulfan sulfate	1031-07-8	0.029	0.13
Endrin	72-20-8	0.0028	0.13
Endrin aldehyde	7421-93-4	0.025	0.13
EPTC [6]	759-94-4	0.042	1.4
Ethyl acetate	141-78-6	0.34	33

REGULATED CONSTITUENT Common Name	CAS[1] Number	Wastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Ethyl benzene	100-41-4	0.057	10
Ethyl cyanide/Propanenitrile	107-12-0	0.24	360
Ethyl ether	60-29-7	0.12	160
bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
Ethyl methacrylate	97-63-2	0.14	160
Ethylene oxide	75-21-8	0.12	NA
Famphur	52-85-7	0.017	15
Fluoranthene	206-44-0	0.068	3.4
Fluorene	86-73-7	0.059	3.4
Formetanate hydrochloride [6]	23422-53-9	0.056	1.4
Formparanate [6]	17702-57-7	0.056	1.4
Heptachlor	76-44-8	0.0012	0.066
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD)	35822-46-9	0.000035	0.0025
1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-HpCDF)	67562-39-4	0.000035	0.0025
1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-HpCDF)	55673-89-7	0.000035	0.0025
Heptachlor epoxide	1024-57-3	0.016	0.066
Hexachlorobenzene	118-74-1	0.055	10
Hexachlorobutadiene	87-68-3	0.055	5.6
Hexachlorocyclopentadiene	77-47-4	0.057	2.4
HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
Hexachloroethane	67-72-1	0.055	30
Hexachloropropylene	1888-71-7	0.035	30
Indeno (1,2,3-c,d) pyrene	193-39-5	0.0055	3.4
Iodomethane	74-88-4	0.19	65
Isobutyl alcohol	78-83-1	5.6	170
Isodrin	465-73-6	0.021	0.066
Isolan [6]	119-38-0	0.056	1.4
Isosafrole	120-58-1	0.081	2.6
Kepone	143-50-0	0.0011	0.13

REGULATED CONSTITUENT Common Name	CAS[1] Number	Wastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Methacrylonitrile	126-98-7	0.24	84
Methanol	67-56-1	5.6	0.75 mg/l TCLP
Methapyrilene	91-80-5	0.081	1.5
Methiocarb [6]	2032-65-7	0.056	1.4
Methomyl [6]	16752-77-5	0.028	0.14
Methoxychlor	72-43-5	0.25	0.18
3-Methylcholanthrene	56-49-5	0.0055	15
4,4-Methylene bis(2-chloroaniline)	101-14-4	0.50	30
Methylene chloride	75-09-2	0.089	30
Methyl ethyl ketone	78-93-3	0.28	36
Methyl isobutyl ketone	108-10-1	0.14	33
Methyl methacrylate	80-62-6	0.14	160
Methyl methansulfonate	66-27-3	0.018	NA
Methyl parathion	298-00-0	0.014	4.6
Metolcarb [6]	1129-41-5	0.056	1.4
Mexacarbate [6]	315-18-4	0.056	1.4
Molinate [6]	2212-67-1	0.042	1.4
Naphthalene	91-20-3	0.059	5.6
2-Naphthylamine	91-59-8	0.52	NA
o-Nitroaniline	88-74-4	0.27	14
p-Nitroaniline	100-01-6	0.028	28
Nitrobenzene	98-95-3	0.068	14
5-Nitro-o-toluidine	99-55-8	0.32	28
o-Nitrophenol	88-75-5	0.028	13
p-Nitrophenol	100-02-7	0.12	29
N-Nitrosodiethylamine	55-18-5	0.40	28
N-Nitrosodimethylamine	62-75-9	0.40	2.3
N-Nitroso-di-n-butylamine	924-16-3	0.40	17
N-Nitrosomethylethylamine	10595-95-6	0.40	2.3
N-Nitrosomorpholine	59-89-2	0.40	2.3
N-Nitrosopiperidine	100-75-4	0.013	35

REGULATED CONSTITUENT Common Name	CAS[1] Number	Wastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
N-Nitrosopyrrolidine	930-55-2	0.013	35
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	3268-87-9	0.000063	0.000063
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	39001-02-0	0.000063	0.005
Oxamyl [6]	23135-22-0	0.056	0.28
Parathion	56-38-2	0.014	4.6
Total PCBs (sum of all PCB isomers, or all Aroclors)	1336-36-3	0.10	10
Pebulate [6]	1114-71-2	0.042	1.4
Pentachlorobenzene	608-93-5	0.055	10
PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
Pentachloroethane	76-01-7	0.055	6.0
Pentachloronitrobenzene	82-68-8	0.055	4.8
Pentachlorophenol	87-86-5	0.089	7.4
Phenacetin	62-44-2	0.081	16
Phenanthrene	85-01-8	0.059	5.6
Phenol	108-95-2	0.039	6.2
o-Phenylenediamine [6]	95-54-5	0.056	5.6
Phorate	298-02-2	0.021	4.6
Phthalic acid	100-21-0	0.055	28
Phthalic anhydride	85-44-9	0.055	28
Physostigmine [6]	57-47-6	0.056	1.4
Physostigmine salicylate [6]	57-64-7	0.056	1.4
Promecarb [6]	2631-37-0	0.056	1.4
Pronamide	23950-58-5	0.093	1.5
Propham [6]	122-42-9	0.056	1.4
Propoxur [6]	114-26-1	0.056	1.4
Prosulfocarb [6]	52888-80-9	0.042	1.4
Pyrene	129-00-0	0.067	8.2
Pyridine	110-86-1	0.014	16
Safrole	94-59-7	0.081	22

REGULATED CONSTITUENT Common Name	CAS[1] Number	Wastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Silvex/2,4,5-TP	93-72-1	0.72	7.9
1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001
TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001
1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
1,1,2,2-Tetrachloroethane	79-34-5	0.057	6.0
Tetrachloroethylene	127-18-4	0.056	6.0
2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4
Thiodicarb [6]	59669-26-0	0.019	1.4
Thiophanate-methyl [6]	23564-05-8	0.056	1.4
Tirpate [6]	26419-73-8	0.056	0.28
Toluene	108-88-3	0.080	10
Toxaphene	8001-35-2	0.0095	2.6
Triallate [6]	2303-17-5	0.042	1.4
Tribromomethane/Bromoform	75-25-2	0.63	15
1,2,4-Trichlorobenzene	120-82-1	0.055	19
1,1,1-Trichloroethane	71-55-6	0.054	6.0
1,1,2-Trichloroethane	79-00-5	0.054	6.0
Trichloroethylene	79-01-6	0.054	6.0
Trichloromonofluoromethane	75-69-4	0.020	30
2,4,5-Trichlorophenol	95-95-4	0.18	7.4
2,4,6-Trichlorophenol	88-06-2	0.035	7.4
2,4,5-Trichlorophenoxyacetic acid/2,4,5-T	93-76-5	0.72	7.9
1,2,3-Trichloropropane	96-18-4	0.85	30
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.057	30
Triethylamine [6]	101-44-8	0.081	1.5
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.11	0.10
Vernolate [6]	1929-77-7	0.042	1.4
Vinyl chloride	75-01-4	0.27	6.0
Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
Inorganic Constituents			

REGULATED CONSTITUENT Common Name	CAS[1] Number	Wastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Antimony	7440-36-0	1.9	1.15 mg/l TCLP
Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
Barium	7440-39-3	1.2	21 mg/l TCLP
Beryllium	7440-41-7	0.82	1.22 mg/l TCLP
Cadmium	7440-43-9	0.69	0.11 mg/l TCLP
Chromium (Total)	7440-47-3	2.77	0.60 mg/l TCLP
Cyanides (Total)[4]	57-12-5	1.2	590
Cyanides (Amenable)[4]	57-12-5	0.86	30
Fluoride[5]	16984-48-8	35	NA
Lead	7439-92-1	0.69	0.75 mg/l TCLP
Mercury - Nonwastewater from Retort	7439-97-6	NA	0.20 mg/l TCLP
Mercury - All Others	7439-97-6	0.15	0.025 mg/lTCLP
Nickel	7440-02-0	3.98	11 mg/l TCLP
Selenium[7]	7782-49-2	0.82	5.7 mg/l TCLP
Silver	7440-22-4	0.43	0.14 mg/l TCLP
Sulfide[5]	18496-25-8	14	NA
Thallium	7440-28-0	1.4	0.20 mg/l TCLP
Vanadium[5]	7440-62-2	4.3	1.6 mg/l TCLP
Zinc[5]	7440-66-6	2.61	4.3 mg/l TCLP

(1) CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with it's salts and/or ester, the CAS number is given for the parent compound only.
(2) Concentration standards for wastewaters are expressed in mg/l are based on analysis of composite samples.
(3) Except for Metals (EP or TCLP) and Cyanides (Total and Amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of Title 22, CCR, chapter 14, article 15 or chapter 15, article 15, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in section 66268.40(d). All concentration standards for nonwastewaters are based on analysis of grab samples.
(4) Both Cyanides (Total) and Cyanides (Amenable) for nonwastewaters are to be analyzed using Method 9010 or 9012, found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA Publication SW-846, as incorporated by reference in section 66260.11, with a sample size of 10 grams and a distillation time of one hour and 15 minutes.
(5) These constituents are not "underlying hazardous constituents" in characteristic wastes, according to the definition in section 66260.10.
(6) Between August 26, 1997, and August 26, 1998, these constituents are not "underlying hazardous constituents" as defined in section 66260.10 of this division.
(7) This constituent is not an underlying hazardous constituent as defined in section 66260.10 of this division because its UTS level is greater than its TC level, thus a treated selenium waste would always be characteristically hazardous, unless it is treated to below its characteristic level.
(8) This standard is temporarily deferred for soil exhibiting a hazardous characteristic due to D004-D011 only.

NOTE: NA means not applicable.

NOTE: Authority cited: Sections 25150, 25159, 25159.5, 25179.6 and 58012, Health and Safety Code. Reference: Sections 25159, 25159.5 and 58012, Health and Safety Code; 40 CFR Section 268.48.

HISTORY

1. New section and Table filed 10-24-94 as an emergency; operative 10-24-94 (Register 94, No. 43). A Certificate of Compliance must be transmitted to OAL by 2-20-95 or emergency language will be repealed by operation of law on the following day.
2. New section and Table refiled 2-21-95 as an emergency; operative 2-21-95 (Register 95, No. 8). A Certificate of Compliance must be transmitted to OAL by 6-21-95 or emergency language will be repealed by operation of law on the following day.
3. New section and Table refiled 6-19-95 as an emergency; operative 6-19-95 (Register 95, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-95 or emergency language will be repealed by operation of law on the following day.
4. New section and Table refiled 10-16-95 as an emergency; operative 10-16-95 (Register 95, No. 42). A Certificate of Compliance must be transmitted to OAL by 2-13-96 or emergency language will be repealed by operation of law on the following day.
5. Certificate of Compliance as to 10-24-94 order transmitted to OAL 12-15-95 and filed 1-31-96 (Register 96, No. 5).
6. Change without regulatory effect repealing and adopting new table filed 6-4-99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 23).
7. Change without regulatory effect amending Table “Universal Treatment Standards” filed 9-11-2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 37).
8. Change without regulatory effect amending Table, “Universal Treatment Standards” filed 7—3—2002 pursuant to section 100, title 1, California Code of Regulations (Register 2002, No. 27).

§66268.49. Alternative LDR Treatment Standards for Contaminated Soil.

(a) Applicability. You shall comply with LDRs prior to placing soil that exhibits a characteristic of hazardous waste, or exhibited a characteristic of hazardous waste at the time it was generated, into a land disposal unit. The following chart describes whether you shall comply with LDRs prior to placing soil contaminated by listed hazardous waste into a land disposal unit:

If LDRs...	And If LDRs...	And If ...	Then You...
applied to the listed waste when it contaminated the soil*	apply to the listed waste now		shall comply with LDRs
didn’t apply to the listed waste when it contaminated the soil*	apply to the listed waste now	the soil is determined to contain the listed waste when the soil is first generated	shall comply with LDRs
didn’t apply to the listed waste when it contaminated the soil*	apply to the listed waste now	the soil is determined not to contain the listed waste when the soil is first generated	needn’t comply with LDRs
didn’t apply to the listed waste when it contaminated the soil*	don’t apply to the listed waste now		needn’t comply with LDRs

* For dates of LDR applicability, see CCR, Title 22, chapter 18, appendix VII. To determine the date any given listed hazardous waste contaminated any given volume of soil, use the last date any given listed hazardous waste was placed into any given land disposal unit or, in the case of an accidental spill, the date of the spill.

(b) Prior to land disposal, contaminated soil identified by subsection (a) of this section as needing to comply with LDRs shall be treated according to the applicable treatment standards specified in subsection (c) of this section or according to the Universal Treatment Standards specified in section 66268.48 applicable to the contaminating listed hazardous waste and/or the applicable characteristic of hazardous waste if the soil is characteristic. The treatment standards specified in subsection (c) of this section and the Universal Treatment Standards may be modified through a treatment variance approved in accordance with section 66268.44.

(c) Treatment standards for contaminated soils. Prior to land disposal, contaminated soil identified by subsection (a) of this section as needing to comply with LDRs shall be treated according to all the standards specified in this subsection or according to the Universal Treatment Standards specified in section 66268.48.

(1) All soils. Prior to land disposal, all constituents subject to treatment shall be treated as follows:

(A) For non-metals except carbon disulfide, cyclohexanone, and methanol, treatment shall achieve 90 percent reduction in total constituent concentrations, except as provided by subsection (c)(1)(C)of this section.

(B) For metals and carbon disulfide, cyclohexanone, and methanol, treatment shall achieve 90 percent reduction in constituent concentrations as measured in leachate from the treated media (tested according to the TCLP) or 90 percent reduction in total constituent concentrations (when a metal removal treatment technology is

used), except as provided by subsection (c)(1)(C)of this section.

(C) When treatment of any constituent subject to treatment to a 90 percent reduction standard would result in a concentration less than 10 times the Universal Treatment Standard for that constituent, treatment to achieve constituent concentrations less than 10 times the universal treatment standard is not required. Universal Treatment Standards are identified in section 66268.48 Table UTS.

(2) Soils that exhibit the characteristic of ignitability, corrosivity or reactivity. In addition to the treatment required by subsection (c)(1) of this section, prior to land disposal, soils that exhibit the characteristic of ignitability, corrosivity, or reactivity shall be treated to eliminate these characteristics.

(3) Soils that contain nonanalyzable constituents. In addition to the treatment requirements of subsections (c)(1) and (2) of this section, prior to land disposal, the following treatment is required for soils that contain nonanalyzable constituents:

(A) For soil that contains only analyzable and nonanalyzable organic constituents, treatment of the analyzable constituents to the levels specified in subsections (c)(1) and (2) of this section; or,

(B) For soil that contains only nonanalyzable constituents, treatment by the method specified in section 66268.42 for the waste contained in the soil.

(d) Constituents subject to treatment. When applying the soil treatment standards in subsection (c) of this section, constituents subject to treatment are any constituents listed in section 66268.48 Table UTS--Universal Treatment Standards that are reasonably expected to be present in any given volume of contaminated soil, except fluoride, selenium, sulfides, vanadium, zinc, and that are present at concentrations greater than ten times the universal treatment standard. PCBs are not constituents subject to treatment in any given volume of soil which exhibits the toxicity characteristic solely because of the presence of metals

(e) Management of treatment residuals. Treatment residuals from treating contaminated soil identified by subsection (a) of this section as needing to comply with LDRs shall be managed as follows:

(1) Soil residuals are subject to the treatment standards of this section;

(2) Non-soil residuals are subject to:

(A) For soils contaminated by listed hazardous waste, the hazardous waste standards applicable to the listed hazardous waste; and

(B) For soils that exhibit a characteristic of hazardous waste, if the non-soil residual also exhibits a characteristic of hazardous waste, the treatment standards applicable to the characteristic hazardous waste.

NOTE: Authority cited: Sections 25150, 25159, 25159.5, 25179.5 and 58012, Health and Safety Code. Reference: Sections 25159, 25159.5 and 58012, Health and Safety Code; and 40 CFR Section 268.49.

HISTORY

1. Change without regulatory effect adding new section filed 6-4-99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 23).
2. Change without regulatory effect amending subsections (c)(3)(A)-(B) filed 9-11-2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 37).
3. Change without regulatory effect amending subsections (c)(1)(A)—(B) and (d) filed 7—3—2002 pursuant to section 100, title 1, California Code of Regulations (Register 2002, No. 27).

